

Garden plant selection for Icelandic environment – The search for hardy species and clones in nature

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Growing conditions in Iceland are difficult for plants. The island is situated in the North-Atlantic ocean, quite a long distance from other countries. The Gulf stream makes the island habitable, a warm current flows from the south up to the southcoast of Iceland and along the western shore but when it turns eastwards along the northern shore of Iceland it cools down fairly quickly. Due to this we have oceanic climate in southern and western Iceland but in the North and East the climate is more like a mainland climate. Icelandic soil is volcanic (Andosol), dark and fertile and with different types of clay particles from soils in our neighbouring countries.

Average summer temperature is around 10-11°C (June-August) and average winter temperature is around 0°C, January being the coldest month with average temperature around -4°C. The length of the growing season is variable, in south Iceland it can be between 90-120 days but in the north it is typically between 75-90 days, sometimes even shorter.

Due to Iceland's situation in the far north and its isolation from other countries, the Icelandic flora only counts around 490 plants. There of we have only about 10 species of trees and shrubs and Icelandic forests consist of only birch.

From around 1650 to 1850s a few recorded experiments were done where people imported plant material and tried to grow it under Icelandic conditions. Some of the herbaceous plants thrived but all trees and shrubs died. Danish officials who came to work in Iceland brought gardening knowledge and plant material with them and in the late 1800s gardens were beginning to be seen in the bigger towns in Iceland.

The Icelandic Horticultural Society was founded in 1885 and that marks the beginning of our modern day gardening history. Main focus in the beginning was on food plants but trees and shrubs were also tried.

First nurseries were founded in Reykjavík and Akureyri around 1900 and the plants they produced were both Icelandic and imported. The experience from growing imported plants was very diverse and in the 1920 most had given up on importing trees and shrubs but focused on the Icelandic birch, sorbus and willows. In 1935 the view on imported plants had changed again and now growers had realised that it was very important to look at growing conditions in the plants' native habitats, in order to see whether they could survive the Icelandic climate.

Various collection trips were organised the next decades, quite a few to Alaska and Northern-America because there we got some excellent species that have thrived here, f.ex. black cottonwood (*Populus trichocarpa*), various pines and spruces and many species of willows and alders.

Plant trials have been conducted in connection with many of the collection trips and the focus has mainly been on hardy trees and shrubs that can give shelter to more delicate plants. The ornamental

plants have most come into production through the nurseries themselves, plant enthusiasts or via the botanical gardens.

The division of Iceland into hardiness zones is crucial when choosing the right plant for each part of the country and the hardiness map is based on average temperature information from the Icelandic Met Office.

In 1997 it was estimated that about 10.000 different species and cultivars had been tried in Iceland for the past 130 years. Around 1500-2000 species and cultivars are available in nurseries every year, most produced here but some are always imported because it is too expensive to produce those plants in Iceland. It is forbidden though to import species of trees and shrubs that are important in Icelandic forestry and gardening, due to the danger of imported pests and diseases. Those species we have to produce ourselves.

Plant producers play a very important role in selecting plants for Iceland. They practically decide which plants will be available for Icelandic gardens. Each nursery has a selection of plants they produce or import every year and every year they try something new. Often the experience from these informal plant trials is not shared between nurseries which results in the fact that many nurseries are sometimes trying out the same plants, without knowing about former results. Another thing is that with the project Yndisgróður we are at long last trying to find out which clones really are the best suited for Iceland and the results will hopefully be a group of elite clones that can be produced by our growers.